10th fastest computer in the world, was the first high performance computer built with procurement specifications requiring energy efficiency. Red Sky has a carbon footprint of 203 metric tons of carbon dioxide equivalent compared to its predecessor's 912 metric tons and features a unique cooling system that is more than 95 percent efficient in cooling the system's multitude of computer racks.

Sandia/NM

Integrated Sustainability Planning and Design

Identifying, prioritizing, and funding cost-effective projects has a strong basis in the energy and water management audits completed on the top 75 percent of Sandia/NM's energy-consuming buildings. The audits generate a building-specific list of energy- and water-related deficiencies and opportunities to eliminate or reduce demand or use the resource more efficiently. Integrated planning resulted in $1 million cost savings from 2010 investments and an overall reduction of approximately 3 percent in energy intensity per year.

Sandia National Laboratories/New Mexico and California

Water Consumption Reduction

Metering 100 percent of water use, conducting water use surveys, and committing to reduce water use allowed the Sandia sites to reduce their aggregate water intensity by 30 percent based on the 2007 baseline – significantly exceeding the Executive Order 13514 requirement to achieve a 26 percent reduction in potable water intensity by 2020.

Y-12 National Security Complex (Y-12)

Waste Not Want Not: Comprehensive, Cost-Effective Recycling Program

Linking the organizations with responsibilities and impacts on recycling at Y-12 through the Reduce/Reuse/Recycle Team created the framework for an integrated program that implemented 84 reuse/recycling initiatives in 2010 resulting in more than 109,710,000 pounds of materials (more than 89 percent of its total solid industrial waste stream) being reused/recycled for an estimated cost avoidance of $4.73 million.

POWER MARKETING ADMINISTRATION

Bonneville Power Administration (BPA)

Energy Smart Federal Partnership Project

Using Utility Energy Services Contracts and inter-agency agreements to contract with other Federal agencies for energy services, BPA's Energy Smart Federal Partnership completed energy efficiency projects for 21 agencies that saved more than 170 million kWh/year in energy, as well achieving gas, steam and water reductions throughout the Pacific Northwest since 2001. In 2009, more than 30 million kWh/year of electric energy and 2 billion gallons of water were saved.

OFFICE OF SCIENCE

Oak Ridge National Laboratory (ORNL)

LEED-EB by Example: Going for Gold Lab-wide

Ensuring that the lessons learned in certifying an existing office building to the Leadership in Energy and Environmental Design Existing Building (LEED-EB) Gold level informed future certifications, ORNL documented the efforts of its multi-disciplinary planning and design team to identify energy and water efficient products and systems changes to Building 1059. The manual resulting from the Building 1059 certification will streamline the certification of other existing buildings and help ORNL achieve its goal of having at least 10 buildings LEED-EB certified by 2014.

Pacific Northwest National Laboratory

Getting to the Core of Sustainability

Integrating various site environmental stewardship programs is facilitated through the Environmental Management System (EMS) Core Team which is composed of program leaders responsible for key areas in recent Executive Orders – pollution prevention, fleet management, information technology, energy and water use reductions – and research and development representatives. Operations experts and researchers collaborate through the EMS Core Team: operations staff draw on researchers' innovative ideas and researchers have the opportunity to pilot their technologies in a scalable operating environment.

NATIONAL NUCLEAR SECURITY ADMINISTRATION

Lawrence Livermore National Laboratory (LLNL)

Global Security Paperless eSystems

Converting the LLNL Global Security Principal Directorate processes for move requests and travel approvals to paperless eSystems saved paper, staff time, and money. Before the eSystems were in place, each move request (over 3,000 a year) required three different paper forms; each travel request (about 4,000 a year) required seven approvals and several of the divisions in the directorate had different travel approval processes. Integrating the teams' work into the eSystems led to reduced labor costs and improved productivity, efficiency, and accountability.

Y-12 National Security Complex

Clean Steam Team

Replacing a coal-fired boiler steam plant with a new centralized steam plant using natural gas-fired boiler systems will annually reduce sulfur dioxide emissions by 99.5 percent, nitrous oxide emissions and particulate matter by 72 percent, and carbon dioxide emissions by 11 percent (approximately 18,000 metric tons). Additional benefits are the elimination of 5,000 tons of coal ash, over 450,000 vehicle miles traveled annually to transport coal and coal ash, wastewater treatment costing $800,000, and stormwater runoff from the coal pile.

OFFICE OF SCIENCE

Oak Ridge National Laboratory (ORNL)

Comprehensive Sustainability Management

Capitalizing on ORNL-conducted research and development, the Sustainable Campus Initiative (SCI) integrates energy and resource efficiency and cutting-edge technologies with operational and business processes. Examples of SCI's impact include building more than a million square feet of Leadership in Energy and Environmental Design-certified office and laboratory space, upgrading buildings to be highly energy efficient, reducing energy requirements of electronics through automated management programs, creating a pedestrian friendly campus, promoting transportation sharing, and expanding the fleet of hybrid, electric, and flex-fuel vehicles.

For additional information on **DOE's Sustainability Awards,** contact

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U.S. Department of Energy 2011 Sustainability Award Winners

The first annual DOE Sustainability Awards went to 31 teams and individuals. Winners were honored for outstanding contributions to sustainability including accomplishments in managing pollution, waste, energy, water, and vehicle fleets.

The extraordinary efforts of our award winners help DOE maintain progress in meeting and exceeding the Department's sustainability goals and other mandated goals. The 2011 winners improved the sustainability of DOE by constructing sustainable buildings; implementing innovative green purchasing practices; deploying renewable energy projects; repairing and replacing inefficient equipment; using efficient, paperless systems; installing green information technology software and hardware; increasing the use of alternative fuels and alternative fuel vehicles; reducing potable water use; minimizing the release of greenhouse gases and other contaminants; and increasing staff education, outreach, and participation in sustainable practices.

Changing Behavior to Reduce DOE's Carbon Footprint

EXCEPTIONAL SERVICE AWARDS TO INDIVIDUALS

Brian Costlow
U.S. Department of Energy Headquarters

Brian Costlow consistently optimized sustainability improvements within DOE's Headquarters facilities. His leadership led to installing at Forrestal a 66,000 square foot cool roof and a solar array that generates 235 megawatt-hours annually, and awarding a $26.2 million energy savings performance contract (ESPC) estimated to save $59.5 million in avoided costs. The ESPC will save water at the Germantown complex and reduce energy consumption at the Forrestal facility by more than 20 percent annually.

Michael Dunn
Argonne National Laboratory

Michael Dunn developed and manages Argonne's Energy Savings Reinvestment Program that, as of FY 2010, reinvested $500,000 in new energy conservation projects. His leadership resulted in more than $475,000 in savings over two years due to a load shedding program; water recycling projects save more than 27 million gallons of potable water and $68,000 in avoided costs.

Gene Higgins
Richland Operations Office

Gene Higgins integrated information management, provided leadership, and coordinated information resource requirements among three DOE offices and eight prime contractors to align information technology (IT) infrastructure, capacity, and services with the site's goal of implementing green IT solutions. Under his leadership, 19 computer network and telecommunications facilities were consolidated into 3 and energy consumption was reduced by 2.7 billion Btu.

PROGRAM AWARDS TO TEAMS

Fleet Management Program
Princeton Plasma Physics Laboratory (PPPL)

Initiating its vehicle fleet management program in 2006 to comply with Federal mandates to decrease fleet petroleum consumption and increase alternative fuel use, PPPL already exceeded FY 2015 fleet management targets. As of FY 2010, 73 percent of the PPPL fleet was comprised of alternative fueled vehicles; alternative fuel consumption was 19 times higher than FY 2005 levels, representing more than 77 percent of PPPL's total covered fleet fuel use.

Green Fleet Team
National Nuclear Security Administration (NNSA)

Encouraging members of NNSA's Green Fleet Team to share best practices and implement pilot programs to achieve breakthrough performance resulted in a 12 percent decrease in petroleum use, a 32 percent increase in alternative fuel use, and nearly $4 million in avoided costs. Petroleum use was reduced by 36 percent since 2005, achieving the Executive Order 13514 goal of a 30 percent reduction by 2020 in only five years. Alternative fuel use increased by 254 percent between FY 2005 and FY 2010.

Stephanie Austad, Kimberly Frerichs, Matthew Hammond, Christopher Ischay, and Tad Pearson
Sustainability Program
Idaho National Laboratory (INL)

Integrating sustainability into engineering design, facility operations, and basic cultural values resulted in installing a cool roof, securing INL's first Leadership in Energy and Environmental Design Certification for a new building, incorporating sustainability concepts and metrics for all INL buildings, and increasing the availability and use of alternative fuels by more than 62 percent. These and other activities led to annual savings of more than $1.6 million in avoided costs, 3.8 billion Btu of electricity, and the equivalent of more than 10,600 metric tons of carbon dioxide.

PROJECT AWARDS TO TEAMS

Sustainability in Road Construction
Waste Isolation Pilot Plant

Incorporating sustainable practices early in planning for the reconstruction of a severely deteriorated but necessary road avoided $150,000 in construction costs, 9.7 billion Btu of energy, 340,000 gallons of fresh water, and the equivalent of 640 million tons carbon dioxide. The planning team chose to reuse clean storm water held in evaporation ponds rather than free fresh water and use caliche, a hardened deposit of calcium carbonate, from a salt storage evaporation pond on site for road base material and recycled asphalt product for paving.

Teri Harris and Tim Porter
Information Technology Energy Management during Explosive Growth
Golden Field Office

Facing a significant increase in staffing but committed to reducing energy consumption, the Office of Energy Efficiency and Renewable Energy's Golden Field Office Information Technology staff consolidated and moved dozens of physical servers to virtual servers; the data center now supports more than 300 virtual desktop computers and 50 virtual servers. Energy consumption was reduced by 61 percent even though the number of network users increased by 152 percent from FY 2008. The effort saved approximately 3.0 billion Btu and contributed to cyber security.

Sheila Causby, Mark Fletcher, Leslie Manning, and Paul Simmons
Green Information Technology
Oak Ridge National Laboratory (ORNL)

Completing ORNL campus-wide deployment of a computer power management software application saved 8.1 billion Btu; FY 2010 energy cost savings of $143,043 more than covered the project cost. A pilot established that the software, along with use of smart power strips, centralized printers, photocopiers, and fax machines, saved about 10 percent of total building energy use and reduced night and weekend energy use by 50 percent. The software is well received by ORNL's diverse and highly information technology-dependent workforce, demonstrating that power management is transferable to the challenging computing environments of Federal facilities.

Shawna Rosenkrance and Todd Shepherd
Idaho Nuclear Technology and Engineering Center (INTEC) Water System
Idaho Operations Office

Re-thinking and then modifying the use of the pumps supporting the raw water distribution system at the INTEC reduced electricity and water use by 76 percent in one instance and 30 percent in another, from their respective baselines, equating to savings of 5.7 billion Btu and 150 million gallons of water annually. The project was awarded an Idaho Power Custom Efficiency incentive rebate for more than $162,000 – the largest incentive ever awarded in the southeastern Idaho region – which helped shorten payback to less than two years.

Larry Cumberland, Robert Gallegos, Jeffrey Mousseau, and Gary Robinson
Advanced Mixed Waste Treatment Project
Idaho National Laboratory (INL)

Using the INL Advanced Mixed Waste Treatment Project to repackage waste compacts a 55-gallon drum to roughly one-fifth its original size resulting in reduced waste volume for transportation and more efficient use of limited space in the permanent geological repository at DOE's Waste Isolation Pilot Plant. Waste compacting increased shipping efficiency by about 40 percent and saved 200,520 gallons of diesel fuel, avoiding greenhouse gas emissions equivalent to more than 2,000 metric tons of carbon dioxide.

HEADQUARTERS METERING COMPETITION

Most Monthly Victories in the Forrestal Metering Competition
Purple Zone

In January 2011, DOE Headquarters established a competition in the Forrestal Building for its five zones to reduce their electricity consumption from month to month. Meters in the building measure electricity used by lights and electrical outlets only (i.e., equipment that employees have direct ability to control). The zone with the greatest reduction in average daily energy consumption compared to the previous month is the monthly winner. In January 2011, the Purple Zone's average daily electricity consumption was 3,022 kilowatt hours. By September, it was down to 2,800 kilowatt hours per day. This represents a seven percent decrease – the most of any zone!

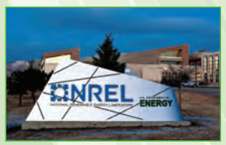
YOU HAVE THE POWER ENERGY CHAMPION

Christopher Evans
Sandia National Laboratories

Christopher Evans' initiatives to identify energy and water-saving opportunities at Sandia National Laboratories in New Mexico and California helped the two locations develop innovative projects that achieve annual savings of 260 billion Btu, 40 million gallons of water, and $1.7 million in costs. His work on high-profile sustainability initiatives that benefited the entire Federal Government include the Energy Independence and Security Act (EISA) of 2007 Section 432 guidance for identifying energy and water efficiency measures in covered facilities, the EISA online compliance tracking system, and the reporting tool used by all Federal agencies to submit their greenhouse gas inventories to the White House Council on Environmental Quality.

OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY

National Renewable Energy Laboratory (NREL)
Near-Zero Materials Waste and Beyond



Integrating its 4R philosophy – Reduce, Reuse, Recycle, Re-buy – into daily practice led NREL to increase its purchases of recycled-content products by 350 percent in a two-year period and the amount of waste it diverted from local landfills to 76 percent. In 2010, NREL diverted 72 percent of its construction waste from disposal through carefully planned recycling.

NREL
Building the Sustainable Campus of the Future

Building on its 33-year history as the only Federal laboratory solely dedicated to the research, development, commercialization and deployment of renewable energy and energy efficiency technologies, NREL's on-site renewable energy projects offset over 4,300 megawatt hours of electricity and 7,400 million Btu of natural gas purchases, which, combined with purchasing Renewable Energy Certificates, resulted in campus carbon neutrality in 2010.

OFFICE OF ENVIRONMENTAL MANAGEMENT

East Tennessee Technology Park
Sustainability in On-Site Shipping

Uniquely applying an off-the-shelf Radio Frequency Identification Device (RFID) technology to the onsite shipping of wastes to a landfill, the site created a paperless shipping process that eliminated 25 minutes of truck idling time resulting in avoiding roughly 260,000 pounds of carbon dioxide emissions and eliminating the use of 12,000 gallons of diesel fuel; cost savings to date are estimated at $8.7 million. The RFID technology has been adopted by several DOE sites.

Savannah River Site (SRS)
Renewable Energy Technology Development, Deployment, and Education in South Carolina – A Collaboration Between Savannah River National Laboratory and Economic Development Partnership of South Carolina

Joining forces, the Savannah River National Laboratory (SRNL) and the Economic Development Partnership of South Carolina (EDPSC) develop and deploy renewable energy technologies within the local community and the state. SRNL shares its expertise and knowledge of renewable energy technologies and EDPSC leverages its existing relationships with industry to identify and evaluate specific deployment opportunities. Hydrogen-powered vehicles, a regenerative fuel cell, and an advanced offshore wind characterization technology have been deployed in the region due to the partnership's efforts.

SRS
Tritiated Debris Remediation Project

Designing and receiving regulatory approval for a thermal heating treatment process that effectively removes tritium from rubble and soil accelerated site cleanup at a SRS site by six years. The thermal process heats soil to a temperature of 212 degrees Fahrenheit and concrete to 1,500 degrees Fahrenheit allowing the treated concrete and soils to be disposed on-site saving an estimated $1.6 million in avoided transportation costs. The remediation site became a living laboratory allowing development, proof-of-principle, and implementation of an innovative, cost-effective technology now available for use at other remediation sites.

OFFICE OF FOSSIL ENERGY

Strategic Petroleum Reserve (SPR)
BIG: Buy It Green

Forming a cross-functional performance improvement team of procurement, property, environmental, engineering, construction, and data systems experts and charging it with developing an integrated solution to ensure compliance with sustainable acquisition requirements resulted in BIG. BIG software leads SPR to purchase products with low or zero waste potential and high recycled content and those produced and delivered in an environmentally sustainable manner. SPR achieved 100 percent affirmative procurement compliance for 2010.

NATIONAL NUCLEAR SECURITY ADMINISTRATION

Lawrence Livermore National Laboratory (LLNL)
Sulfur Hexafluoride Reduction Project

Reclaiming and reusing sulfur hexafluoride (SF_6) and developing monitoring systems that warn of the potential for SF_6 releases allowed LLNL to decrease its annual release of the greenhouse gas at its Flash X-Ray (FXR) facility from 5,000 pounds to 115 pounds. Determining that alternatives to SF_6 are not feasible at the FXR, the operations team focused on minimizing its use because one pound of SF_6 has the same global warming impact of 11 tons of carbon dioxide. The team's operational changes resulted in FXR operational benefits and motivated other researchers to minimize their SF_6 use.

Pantex Plant
Elimination of Chlorine Gas to Protect Workers and the Environment

Researching options for more safely disinfecting its raw groundwater prior to entering the Pantex distribution system led to eliminating the significant hazards associated with shipping, handling, and using chlorine. Given chlorine's risks and potential liabilities it made good business sense to convert Pantex's bulk use of chlorine gas to a MIOX (Mixed Oxide) System that removed risk and protected against microbial pathogens.

Sandia National Laboratories/New Mexico (Sandia/NM)
High Performance Computing Water Reduction and Energy Efficient Cooling

Collaboration between the team which tended to purchase systems based solely on the compute cycle technical requirements and the team which was usually subsequently brought in to "make it work" in the designated location, resulted in a goal that the newest supercomputer be designed to maximize its eco-efficiency. The Red Sky supercomputer, the